

- as set forth in SEQ ID NO: 47, a CDRL2 as set forth in SEQ ID NO: 48, and a CDRL3 as set forth in SEQ ID NO: 49; or
- (E) an antibody or antigen binding fragment thereof comprising: a VH domain comprising a CDRH1 as set forth in SEQ ID NO: 44, a CDRH2 as set forth in SEQ ID NO: 45, and a CDRH3 as set forth in SEQ ID NO: 46, and a VL domain comprising a CDRL1 as set forth in SEQ ID NO: 47, a CDRL2 as set forth in SEQ ID NO: 48, and a CDRL3 as set forth in SEQ ID NO: 49; and
- an antibody or antigen binding fragment thereof comprising: a VH domain comprising a CDRH1 as set forth in SEQ ID NO: 66, a CDRH2 as set forth in SEQ ID NO: 67, and a CDRH3 as set forth in SEQ ID NO: 68, and a VL domain comprising a CDRL1 as set forth in SEQ ID NO: 69, a CDRL2 as set forth in SEQ ID NO: 70, and a CDRL3 as set forth in SEQ ID NO: 71; or
- (F) an antibody or antigen-binding fragment thereof comprising: a VH domain comprising a CDRH1 as set forth in SEQ ID NO: 10, a CDRH2 as set forth in SEQ ID NO: 11, and a CDRH3 as set forth in SEQ ID NO: 12, and a VL domain comprising a CDRL1 as set forth in SEQ ID NO: 13, a CDRL2 as set forth in SEQ ID NO: 14, and a CDRL3 as set forth in SEQ ID NO: 15;
- an antibody or antigen-binding fragment thereof comprising: a VH domain comprising a CDRH1 as set forth in SEQ ID NO: 22, a CDRH2 of SEQ ID NO: 23, and a CDRH3 as set forth in SEQ ID NO: 24, and a VL domain comprising a CDRL1 as set forth in SEQ ID NO: 25, a CDRL2 as set forth in SEQ ID NO: 26, and a CDRL3 as set forth in SEQ ID NO: 27;
- an antibody or antigen binding fragment thereof comprising: a VH domain comprising a CDRH1 as set forth in SEQ ID NO: 44, a CDRH2 as set forth in SEQ ID NO: 45, and a CDRH3 as set forth in SEQ ID NO: 46, and a VL domain comprising a CDRL1 as set forth in SEQ ID NO: 47, a CDRL2 as set forth in SEQ ID NO: 48, and a CDRL3 as set forth in SEQ ID NO: 49; and
- an antibody or antigen binding fragment thereof comprising: a VH domain comprising a CDRH1 as set forth in SEQ ID NO: 66, a CDRH2 as set forth in SEQ ID NO: 67, and a CDRH3 as set forth in SEQ ID NO: 68, and a VL domain comprising a CDRL1 as set forth in SEQ ID NO: 69, a CDRL2 as set forth in SEQ ID NO: 70, and a CDRL3 as set forth in SEQ ID NO: 71; or
- (G) an antibody or antigen-binding fragment thereof comprising: a VH domain comprising a CDRH1 as set forth in SEQ ID NO: 10, a CDRH2 as set forth in SEQ ID NO: 11, and a CDRH3 as set forth in SEQ ID NO: 12, and a VL domain comprising a CDRL1 as set forth in SEQ ID NO: 13, a CDRL2 as set forth in SEQ ID NO: 14, and a CDRL3 as set forth in SEQ ID NO: 15;
- an antibody or antigen-binding fragment thereof comprising: a VH domain comprising a CDRH1 as set forth in SEQ ID NO: 22, a CDRH2 of SEQ ID NO: 23, and a CDRH3 as set forth in SEQ ID NO: 24, and a VL domain comprising a CDRL1 as set forth in SEQ ID NO: 25, a CDRL2 as set forth in SEQ ID NO: 26, and a CDRL3 as set forth in SEQ ID NO: 27;
- an antibody or antigen binding fragment thereof comprising: a VH domain comprising a CDRH1 as set forth in SEQ ID NO: 44, a CDRH2 as set forth in SEQ ID NO: 45, and a CDRH3 as set forth in SEQ ID NO: 46, and a VL domain comprising a CDRL1 as set forth in SEQ ID NO: 47, a CDRL2 as set forth in SEQ ID NO: 48, and a CDRL3 as set forth in SEQ ID NO: 49;
- an antibody or antigen binding fragment thereof comprising: a VH domain comprising a CDRH1 as set forth in SEQ ID NO: 66, a CDRH2 as set forth in SEQ ID NO: 67, and a CDRH3 as set forth in SEQ ID NO: 68, and a VL domain comprising a CDRL1 as set forth in SEQ ID NO: 69, a CDRL2 as set forth in SEQ ID NO: 70, and a CDRL3 as set forth in SEQ ID NO: 71;
- an antibody or antigen binding fragment thereof that binds a GAA signature peptide of Pompe Disease of SEQ ID NO: 4;
- an antibody or antigen binding fragment thereof that binds a GAA signature peptide of Pompe Disease of SEQ ID NO: 6;
- an antibody or antigen binding fragment thereof that binds a GAA signature peptide of Pompe Disease of SEQ ID NO: 7;
- an antibody or antigen binding fragment thereof that binds a GAA signature peptide of Pompe Disease of SEQ ID NO: 8; and
- an antibody or antigen binding fragment thereof that binds a GAA signature peptide of Pompe Disease of SEQ ID NO: 9;
- and/or
- (ii) reference signature peptides comprising:
- an IDUA signature peptide of MPS I of SEQ ID NO: 1;
- an IDUA signature peptide of MPS I of SEQ ID NO: 2;
- a GAA signature peptide of Pompe Disease of SEQ ID NO: 3;
- a GAA signature peptide of Pompe Disease of SEQ ID NO: 4;
- a GAA signature peptide of Pompe Disease of SEQ ID NO: 5;
- a GAA signature peptide of Pompe Disease of SEQ ID NO: 6;
- a GAA signature peptide of Pompe Disease of SEQ ID NO: 7;
- a GAA signature peptide of Pompe Disease of SEQ ID NO: 8; and/or
- a GAA signature peptide of Pompe Disease of SEQ ID NO: 9.
- 62.** A recombinant antibody or antigen binding fragment thereof comprising:
- (A) a heavy chain variable (VH) domain comprising: a complementarity determining region (CDR)H1 as set forth in SEQ ID NO: 10, a CDRH2 as set forth in SEQ ID NO: 11, and a CDRH3 as set forth in SEQ ID NO: 12, and a light chain variable (VL) domain comprising a CDRL1 as set forth in SEQ ID NO: 13, a CDRL2 as set forth in SEQ ID NO: 14, and a CDRL3 as set forth in SEQ ID NO: 15;
- (B) a VH domain comprising a CDRH1 as set forth in SEQ ID NO: 22, a CDRH2 of SEQ ID NO: 23, and a